

IN THE CLAIMS:

Please amend claims 7, 18, 20, and 22 as follows. Please cancel claims 15 and 23 without prejudice or disclaimer.

1. (Withdrawn) A method for reducing an influence of interference in a multi-user receiver, when the multi-user receiver receives signals from users having different data rates using at least two antenna elements, the method comprising:

creating a spatial covariance matrix estimate from wideband antenna signals by sampling, arranging sampled values into a signal vector and by multiplying the signal vector by a conjugate transpose vector of the signal vector,

determining a whitening filter based on a spatial covariance matrix estimate;

whitening received signals by using the whitening filter;

removing whitening from signals of predetermined users by using an inverse matrix of a matrix used in the whitening filter; and

conveying whitened signals and signals from which the whitening has been removed to a receiver element, which carries out multi-path combining and multi-antenna combining.

2. (Withdrawn) The method of claim 1, wherein the said whitening is carried out by matrix vector multiplication.

3. (Withdrawn) The method of claim 1, further comprising:
using maximum ratio combining by the receiver element for performing multi-path combining and multi-antenna combining according to a Rake principle.
4. (Withdrawn) The method of claim 1, wherein said determining comprises determining the whitening filter by using a Cholesky decomposition.
5. (Withdrawn) The method of claim 1, wherein the said removing comprises removing the whitening from the predetermined users which are determined based on a bit rate threshold.
6. (Withdrawn) A multi-user receiver which uses at least two antenna elements and in which an influence of interference is reduced, the multi-user receiver comprising:
pre-filtering means for pre-filtering a wideband antenna signal, the pre-filtering means being determined based on a spatial covariance matrix estimate, the spatial covariance matrix estimate is obtained from wideband antenna signals by sampling, arranging sampled values into a signal vector and by multiplying the signal vector by a conjugate transpose vector of the signal vector;
removing means for removing whitening from signals of predetermined users by using an inverse matrix of matrix used in a whitening filter; and

performing means for performing multi-path combining and multi-antenna combining.

7. (Currently Amended) A multi-user receiver ~~which uses at least two antenna elements and in which an influence of interference is reduced, the multi-user receiver~~ comprising:

a branch with a whitening arrangement;[[,]]

another branch without a whitening arrangement; and

a switching means for conveying received signals to the branch with the whitening arrangement or to the another branch without the whitening arrangement depending on a used bit rate, wherein the multi-user receiver is configured to use at least two antenna elements and in which an influence of interference is reduced; and

receiving means for performing multi-path combining and multi-antenna combining; and

determining means for determining the predetermined users from whom the whitening is removed based on a bit rate threshold.

8. (Withdrawn) A multi-user receiver in which an influence of interference is reduced, the multi-user receiver comprising:

a pre-filter whitening a wideband antenna signal, the pre-filter being determined based on a spatial covariance matrix estimate, the spatial covariance matrix estimate is

obtained from wideband antenna signals by sampling, arranging sampled values into a signal vector and by multiplying the signal vector by a conjugate transpose vector of the signal vector;

a whitening removing arrangement removing the whitening from signals of predetermined users by using an inverse matrix of a matrix used in a whitening filter; and

a receiver element performing multi-path combining and multi-antenna combining.

9. (Withdrawn) The multi-user receiver of claim 6, wherein the whitening is carried out by complex matrix multiplication.

10. (Original) The multi-user receiver of claim 7, wherein the whitening is carried out in the whitening arrangement by complex matrix multiplication.

11. (Previously Presented) The multi-user receiver of claim 7, wherein the receiving means for performing the multi-path combining and the multi-antenna combining comprises a maximum ratio combiner.

12. (Withdrawn) The multi-user receiver of claim 8, wherein the receiver element performing the multi-path combining and the multi-antenna combining comprises a maximum ratio combiner.

13. (Withdrawn) The multi-user receiver of claim 6, wherein the performing means for performing the multi-path combining and the multi-antenna combining comprises a maximum ratio combiner.

14. (Withdrawn) The multi-user receiver of claim 6, wherein the multi-user receiver further comprises determining means for determining the predetermined users from whom whitening is removed based on a bit rate threshold.

15. (Canceled).

16. (Withdrawn) The multi-user receiver of claim 8, wherein the multi-user receiver further comprises determining means for determining the predetermined users from whom the whitening is removed based on a bit rate threshold.

17. (Withdrawn) A base station comprising a multi-user receiver, the multi-user receiver uses at least two antenna elements and, in the base station, an influence of an interference is reduced, the base station comprising:

pre-filtering means for pre-filtering a wideband antenna signal, the pre-filtering means being determined based on a spatial covariance matrix estimate, the spatial covariance matrix estimate is obtained from wideband antenna signals by sampling,

arranging sampled values into a signal vector and by multiplying the signal vector by a conjugate transpose vector of the signal vector;

removing means for removing whitening from signals of predetermined users by using an inverse matrix of a matrix used in a whitening filter; and

performing means for performing multi-path combining and multi-antenna combining.

18. (Currently Amended) A base station comprising:

a multi-user receiver, wherein the multi-user receiver ~~uses~~ is configured to use at least two antenna elements and, in the base station, an influence of an interference is reduced;

a branch with a whitening arrangement, another branch without a whitening arrangement and a switching arrangement configured to convey received signals to the branch with the whitening arrangement or to the another branch without the whitening arrangement depending on a used bit rate; and

an element configured to perform multi-path combining and multi-antenna combining; and

a determining unit configured to determine the predetermined users from whom the whitening is removed based on a bit rate threshold.

19. (Withdrawn) A base station comprising a multi-user receiver, the multi-user receiver uses at least two antenna elements and, in the base station, an influence of an interference is reduced, the base station comprising:

a pre-filter whitening a wideband antenna signal, the pre-filter being determined based on a spatial covariance matrix estimate, the spatial covariance matrix estimate is obtained from wideband antenna signals by sampling, arranging sampled values into a signal vector and by multiplying the signal vector by a conjugate transpose vector of the signal vector;

a whitening removing arrangement removing whitening from signals of predetermined users by using an inverse matrix of a matrix used in a whitening filter' and an element performing multi-path combining and multi-antenna combining.

20. (Currently Amended) A multi-user receiver ~~which uses at least two antenna elements and in which an influence of interference is reduced, the multi-user receiver~~ comprising:

a branch with a whitening arrangement;[[,]]

another branch without a whitening arrangement; and

a switching arrangement configured to convey received signals to the branch with the whitening arrangement or to the another branch without the whitening arrangement depending on a used bit rate, wherein the multi-user receiver uses at least two antenna elements and in which an influence of interference is reduced; and

a receiver element configured to perform multi-path combining and multi-antenna combining; and

a determining unit configured to determine the predetermined users from whom the whitening is removed based on a bit rate threshold.

21. (Previously Presented) The multi-user receiver of claim 20, wherein the whitening is carried out in the whitening arrangement by complex matrix multiplication.

22. (Currently Amended) The multi-user receiver of claim 20, wherein the receiver element ~~configured to perform the multi-path combining and the multi-antenna combining~~ comprises a maximum ratio combiner.

23. (Canceled).